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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,858	09/29/2006	Stefan Sommer	60680-2121	8118

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EXAMINER	
LEONG, JONATHAN G	

ART UNIT	PAPER NUMBER
1725	

MAIL DATE	DELIVERY MODE
10/27/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,858	SOMMER ET AL.	
	Examiner	Art Unit	
	JONATHAN G. LEONG	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/24/2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18,20-26 and 28-37* is/are pending in the application.

4a) Of the above claim(s) *26 and 28-36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18,20-25 and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. This application contains claims 26 and 28-36 drawn to an invention nonelected with traverse in the reply filed on 2/22/2010. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

2. The Examiner notes that the restriction requirement was made final in the previous Office Action mailed 4/27/2010. The Applicant may petition from the requirement under 37 CFR 1.144. The Examiner further notes that the new amended special technical feature does not differentiate from the invention of prior art US 2002/0168582 which discloses projections and corresponding cavities on the second plate form at least one connecting passage between discrete and spaced apart projections and corresponding cavities on the first plate (Figs. 17-19).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 18, 20-25, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibb et al. (US 2003/0194595) in view of Funatsu et al. (US 2002/0168562).

Regarding claim 18, Gibb discloses a separator for electrochemical systems (flow field plate assembly, Abstract), comprising, a first conductive plate having a face (18, Fig. 5); and a second conductive plate having a face (17, Fig. 5); wherein each plate includes a series of projections extending outwardly therefrom (see Fig. 5); wherein each of the projections have a corresponding cavity defined on the opposite side thereof (see Fig. 5); wherein when the faces of the first and second plates are brought into an overlapping relationship, at least a subset of the cavities of the first plate engage a subset of the cavities of the second plate to provide at least one flow path between the first plate and the second plate (25, Fig. 5); wherein the cavities of the first

plate (24) are dissimilar in shape from the cavities of the second plate (21); wherein the projections and corresponding cavities on the first plate are discrete and spaced from one another (see Fig. 5). Gibb does not explicitly disclose the projections and corresponding cavities on the second plate (27) form at least one connecting passage between discrete and spaced apart projections and corresponding cavities on the first plate (18).

Funatsu teaches a similar separator (Fig. 17-19) for electrochemical systems. Funatsu further teaches projections and corresponding cavities on a plate form at least one connecting passage (58) between discrete and spaced apart projections and corresponding cavities ([0088]/L8-15). Funatsu further teaches that such a design enables a cooling water channel through which cooling water flows to be formed ([0088]/L8-15).

Gibb and Funatsu are combinable because they are concerned with the same field of endeavor, namely, separators for electrochemical systems.

It would have been obvious to one having ordinary skill in the art at the time of the invention to combine the teachings of Funatsu, for example, substituting the second plate of Gibb with a separator plate of Funatsu (Funatsu: Fig. 18) so that the projections and corresponding cavities on the second plate (27) of modified Gibb form at least one connecting passage between discrete and spaced apart projections and corresponding cavities on the first plate (18) since such a design had already been demonstrated in the art (Funatsu: Fig. 18) to provide for a cooling water channel within two plates of a

separator and one having ordinary skill in the art at the time of the invention would have had reasonable expectation of success in doing so.

Regarding claim 20, modified Gibb discloses all of the claim limitations as set forth above. Modified Gibb further discloses the cavities of the second plate comprise a plurality of generally parallel channels (Gibb: Fig.5 and Funatsu: Fig. 18).

Regarding claim 21, modified Gibb discloses all of the claim limitations as set forth above. Modified Gibb further discloses the at least one flow path between the first place and the second plate defines at least one flow path for cooling fluid (Gibb: [0016] and Funatsu: [0088]).

Regarding claims 22-25, modified Gibb discloses all of the claim limitations as set forth above. Modified Gibb further discloses at least one of the projections of the first plate and the projections of the second plate define a flow path for media distribution; the projections of the first place define a flow path for distributing a fuel medium an the anode side of a fuel cell; the projections of the second plate define a flow path for distributing a medium on the cathode side of a fuel cell; wherein the medium (on the cathode side) is of air and oxygen (Gibb: [0016], [0034-0035]; and Funatsu: [0088], Fig. 17 and 18).

Regarding claim 37, modified Gibb discloses all of the claim limitations as set forth above. Modified Gibb further discloses the first plate is in contact with and connected to the second plate (Gibb: Fig. 5 and Funatsu: Figs. 17 and 18).

7. Claims 18, 20-25, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funatsu et al. (US 2002/0168562) in view of Gibb et al. (US 2003/0194595).

Regarding claim 18, Funatsu discloses a separator for electrochemical systems ([0084], Fig. 17-19), comprising, a first conductive plate having a face (see Fig. 17); and a second conductive plate having a face (see Fig. 17); wherein each plate includes a series of projections extending outwardly therefrom (see Fig. 17); wherein each of the projections have a corresponding cavity defined on the opposite side thereof (see Fig. 17); wherein when the faces of the first and second plates are brought into an overlapping relationship, at least a subset of the cavities of the first plate engage a subset of the cavities of the second plate to provide at least one flow path between the first plate and the second plate (57, Fig. 17); wherein the projections and corresponding cavities on the first plate are discrete and spaced from one another (see Fig. 17); wherein the projections and corresponding cavities on the second plate form at least one connecting passage (58, see Fig. 18) between discrete and spaced apart projections and corresponding cavities on the first plate (see Figs. 17 and 18). Funatsu does not explicitly disclose the cavities of the first plate are dissimilar in shape from the cavities of the second plate.

Gibb teaches a similar separator for electrochemical systems (flow field plate assembly, Abstract, Fig. 5). Gibb further teaches that the cavities of the first plate should be dissimilar in shape from the cavities of the second plate in order to ensure structural strength [0038].

Funatsu and Gibb are combinable because they are concerned with the same field of endeavor, namely, separators for electrochemical systems.

It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the teachings of Gibb, for example, use of dissimilar shapes for each of the first and second plate as disclosed by Funatsu in order to ensure structural strength. In this way, one of the plates of Funatsu (Fig. 17) would be replaced with a plate similar to that as taught by Gibb, e.g. one with semicircular shaped cavities (plate 18, Fig. 5).

Regarding claim 20, modified Funatsu discloses all of the claim limitations as set forth above. Modified Funatsu further discloses the cavities of the second plate comprise a plurality of generally parallel channels (Gibb: Fig.5 and Funatsu: Fig. 18).

Regarding claim 21, modified Funatsu discloses all of the claim limitations as set forth above. Modified Funatsu further discloses the at least one flow path between the first place and the second plate defines at least one flow path for cooling fluid (Gibb: [0016] and Funatsu: [0088]).

Regarding claims 22-25, modified Funatsu discloses all of the claim limitations as set forth above. Modified Funatsu further discloses at least one of the projections of the first plate and the projections of the second plate define a flow path for media distribution; the projections of the first place define a flow path for distributing a fuel medium an the anode side of a fuel cell; the projections of the second plate define a flow path for distributing a medium on the cathode side of a fuel cell; wherein the

medium (on the cathode side) is of air and oxygen (Gibb: [0016], [0034-0035]; and Funatsu: [0088], Fig. 17 and 18).

Regarding claim 37, modified Funatsu discloses all of the claim limitations as set forth above. Modified Funatsu further discloses the first plate is in contact with and connected to the second plate (Gibb: Fig. 5 and Funatsu: Figs. 17 and 18).

Response to Arguments

8. Applicant's arguments with respect to claims 18, 20-25, and 37 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN G. LEONG whose telephone number is (571) 270-1292. The examiner can normally be reached on M-Th 8:00 AM - 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. G. L./
Examiner, Art Unit 1725
10/14/2010

/Basia Ridley/
Supervisory Patent Examiner, Art Unit 1725